



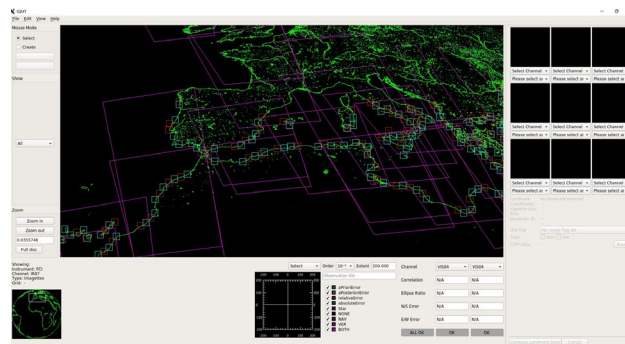
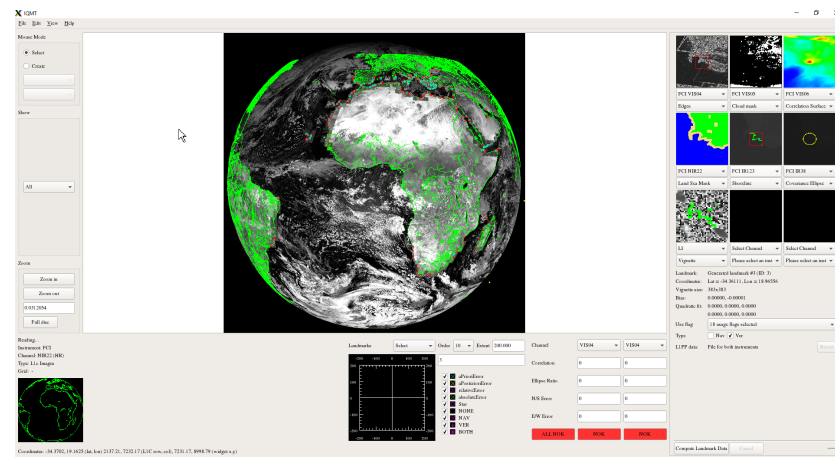
Jornada de Ciencia e Industria GMV Space science capabilities and projects

AEE – Universidad Alcalá de Henares
05/02/2025

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We offer

- Active work with scientist and instrument providers
- Instrument performance monitoring tools
- Calibration and Characterization tools
- Data Quality Tools
- Browsers and Visualization Tools
- Test Tools for validation of algorithm refinements and processor evolutions
- Engineering support to science activities
- Optimization of workflows
- Improvements in performances (time, data quality...)
- Prototyping



Examples

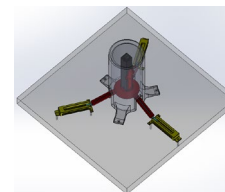
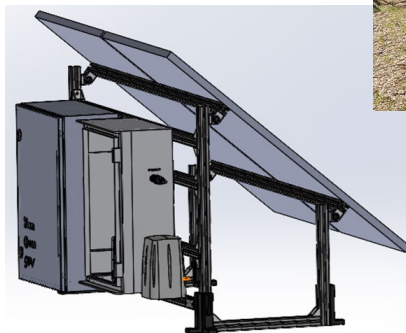
ESA DISC (Data Innovation Science Cluster) projects

- International consortium of experts from scientific institutions and industry to ensure that the data products of an Earth Explorer mission are of the highest quality as part of the data user quality framework

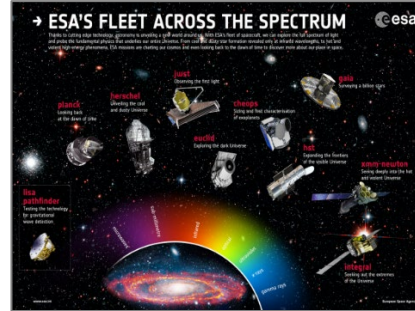
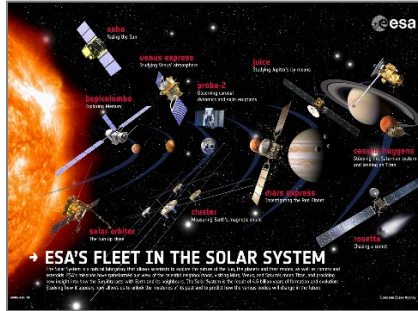


Space Weather Products for Southern Europe

- Collaboration with Alcalá de Henares University to design and develop a prototype for measuring the local geomagnetic disturbance



SCIENCE & ROBOTIC EXPLORATION



- HERA Autonomous GNC
- RAMSES autonomous GNC
- 10 years continuous activity in Lunar Landing scenarios
- ExoMars 2016 Entry Descent and Landing GNC OBSW
- Exomars 2020 on-board software
- Exomars Rover Operations Center
- Footprint autonomous visual based GNC
- Mars Sample Return

- Bepi-Colombo and SOLO Mission Control System
- ESOC Flight dynamics and operations team (inc. Rosetta mission)
- JUICE AOCS Support
- Space Situational Awareness G-Theta camera
- ESAC operations staff
- PROBA-3
- SpainSat NG ground control
- GALILEO control center and future LEO-PNT

- CHEOPS Ground Control Segment and Satellite Simulator
- Gaia Data Processing
- Euclid SVF
- Lisa Pathfinder LTP ISV
- ESOC Flight dynamics and operations team
- ESAC operations staff

- Lunar Reconnaissance Orbiter (LRO) Mission Planning System
- World Space Observatory-Ultraviolet (WSO-UV) Ground Segment
- Sample Transfer Arm perception unit Mars Sample Return (MSR)
- MBZ-SAT image planning and processing

Flight Segment and Robotics

Scientific Missions and Support

On-Board Autonomy and AI Edge Computation to support scientific missions

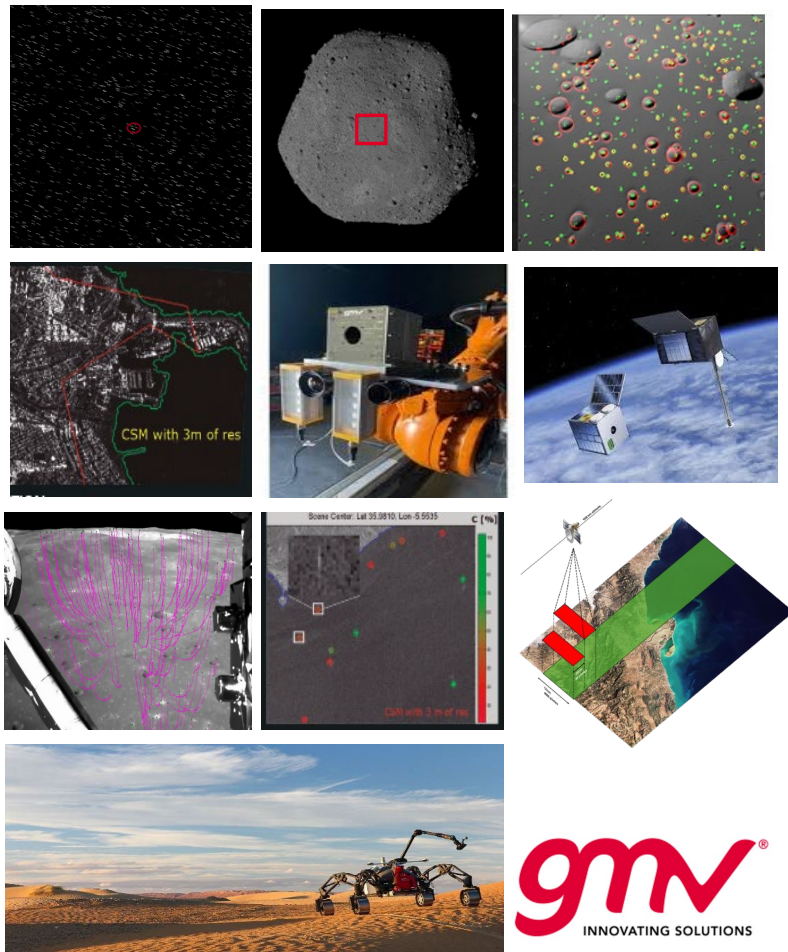
- Autonomous Decision Making
- Lunar/Mars Rovers, Perception Units Robotic Arms
- Asteroid pinpointing, Descent and Landing, Characterization
- Space Exploration Vision-Based Navigation
- EO classification and detection problems,

Instruments and Avionic

- G-Theia smart detection camera
- SNERCAM reconfigurable Navigation-Science multifilter cam
- High-Performance co-processors for computer-vision
- On-Board precise GNSS SW Receiver and SDR comm
- On-Board cybersecurity modules

Leading European Missions Technology

- HERA to Dydimos binary system impact deflection study, implementing autonomous GNC and avionics co-processor
- RAMSES, GNC to very NEO, Apohis
- LEO Positioning, Navigation and Timing



Thank you

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